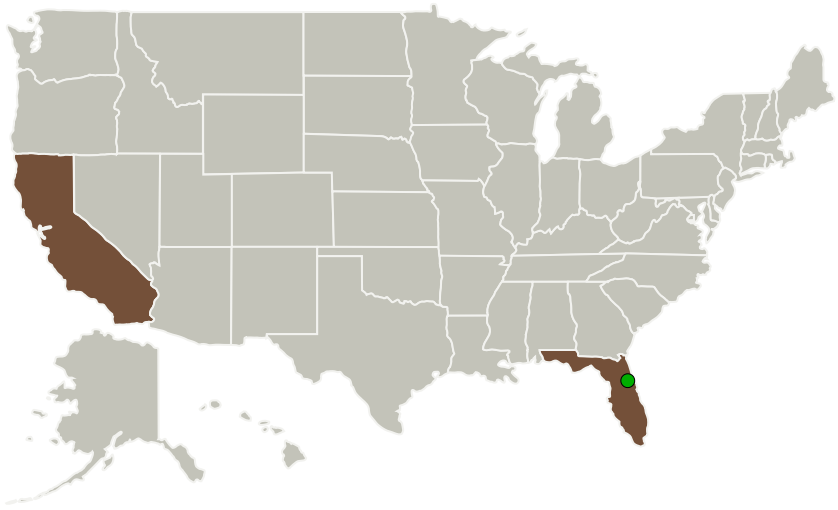
Metric Tracking of Launch Vehicles, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

NASA needs reliable, accurate navigation for launch vehicles and other missions. GPS is the best world-wide navigation system, but operates at low power making it susceptible to intentional and unintentional interference. Toyon proposes to develop an anti-jam front-end that uses Space-Time Adaptive Processing to suppress interference, and implement it in a compact, low-cost package. This design will work with any existing GPS receiver, although higher performance can be achieved by tightly integrating a GPS receiver module with the anti-jam functionality. Toyon's Miniature Integrated Direction-finding Attitude-determining Anti-jam System (MIDAAS(TM)) obtains position, velocity, attitude, and time (PVAT) measurements directly from GPS signals. The ultra-tightly coupled (UTC) navigation architecture fuses all sensor data. Integrating this system with the anti-jam module makes the system inherently robust to interference and the resulting position and attitude estimate more accurate.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Toyon Research Corporation	Lead Organization	Industry	Goleta, California
Kennedy Space Center(KSC)	Supporting Organization	NASA Center	Kennedy Space Center, Florida

Metric Tracking of Launch Vehicles, Phase I

Table of Contents

Metric Tracking of Launch Vehicles, Phase I

Completed Technology Project (2010 - 2010)

Primary U.S. Work Locations	
California	Florida

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139211)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Toyon Research Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

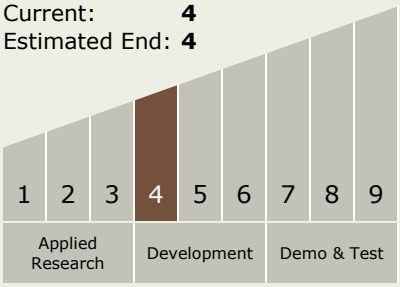
Carlos Torrez

Principal Investigator:

Roger Helkey

Technology Maturity (TRL)

Start: **4**
Current: **4**
Estimated End: **4**



Metric Tracking of Launch Vehicles, Phase I

Completed Technology Project (2010 - 2010)

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.1 Infrastructure Optimization
    - TX13.1.2 Launch/Test/Ops Site Management

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System